

# THE ROLE OF SURPRISE IN SATISFACTION JUDGEMENTS

Joëlle Vanhamme, Catholic University of Louvain (FNRS - LABACC)  
Dirk Snelders, Delft University of Technology

## ABSTRACT

Empirical findings suggest that surprise plays an important role in consumer satisfaction, but there is a lack of theory to explain why this is so. The present paper provides explanations for the process through which positive (negative) surprise might enhance (reduce) consumer satisfaction. First, the arousal that is part of the surprise reaction can contaminate subsequent positive affective reactions or emotions about the product or service. Second, the surprise reaction allows for a strong focus on a single product or service aspect. This will create more accessible knowledge that may have a disproportionate effect on memory-based satisfaction judgements. In addition, several possible moderators of the surprise-satisfaction relationship are described. Finally, the managerial implications of the proposed processes and moderators are discussed.

## INTRODUCTION

It has been argued that merely satisfying customers is not enough: "businesses need to move beyond mere satisfaction, to customer delight" (Rust et al. 1996, p. 229). Delight is considered to be the highest level of customer satisfaction and translates into better outcomes (e.g. higher customer retention) than can be achieved through other levels of satisfaction (Oliver et al. 1997; Rust et al. 1996). Theoretically, it has also been suggested that positive surprise is a necessary condition for consumer delight (e.g. Oliver et al. 1997; Rust et al. 1996). The very idea that surprise and delight are related was already suggested by the empirical work of Plutchik (1980). This author found that delight results from a combination of two first-order emotions: surprise and joy. Westbrook and Oliver (1991; Oliver and Westbrook 1993) also report some indirect evidence for the "positive

surprise-satisfaction" link. Using cluster analysis on the emotions consumers experienced during products/services consumption, both of these studies brought to light a cluster with high scores of surprise and joy ("pleasantly surprised consumers"). Further analysis of satisfaction scores showed that these pleasantly surprised consumers were more satisfied than the consumers from any other group. An exploratory study by Oliver et al. (1997) may also be considered as support for the "positive surprise-satisfaction" link. The authors found a causal path "arousal  $\Rightarrow$  positive emotions  $\Rightarrow$  satisfaction." However, a closer look at the way they measured "arousal" reveals that their study actually supports the "surprise  $\Rightarrow$  positive emotions  $\Rightarrow$  satisfaction" path. Arousal was measured with two items which are two of the three items of the DES scale (Izard 1977) for surprise.

The studies mentioned above all suggest that surprise plays an important role in consumer satisfaction. However, these studies have not provided definitive empirical support for the surprise-satisfaction relationship. Some of these studies use methods that do not provide results to determine causal relationships, and all of the studies are based on events that were surprising in retrospect. In addition to these methodological issues, no conceptual framework exists that allows for predictions about the effect of surprise on satisfaction. This is because, as yet, no theory has been developed about the possible psychological processes involved in the surprise-satisfaction relationship. Some authors have asked that surprise be investigated in a marketing context (Derbaix and Pham 1989) and complained about the lack of a theoretical framework for the emotion of surprise (Oliver et al. 1997; Westbrook and Oliver 1991). Recently, a few attempts have been made to look at the role of surprise in a marketing context (e.g., Derbaix and Vanhamme 2000; Vanhamme 2000; Vanhamme

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et al. 1999). The present paper elaborates on this scarce literature, and also provides a theoretical framework about the possible psychological processes through which consumer satisfaction may be enhanced by surprise.

### THE EMOTION OF SURPRISE

Based on, for example, Charlesworth (1969), Ekman and Friesen (1975), Izard (1977) and Plutchik (1980), most recent studies carried out on surprise (e.g. Reisenzein et al. 1996; Schützwohl 1998) consider surprise to be a neutral (i.e. neither positive nor negative) and short-lived emotion. However, some authors do not share that point of view (e.g. Ortony et al. 1988). The reason is largely due to the lack of consensus, in psychology, on what is an emotion. Ortony et al. (1988), for example, consider that surprise is not an emotion because it is neutral. According to these authors, emotions should have a valence (i.e. either positive or negative). Here, we adopt the view that is predominant in all recent articles published on surprise in psychology, i.e. that surprise is a neutral emotion (e.g. Reisenzein 2000, Meyer et al. 1997).

The emotion of surprise is elicited by either unexpected or misexpected products/services/attributes (e.g. Ekman and Friesen 1975; Scherer 1984) i.e., more precisely, a "schema discrepancy" (e.g. Meyer et al. 1991; Meyer et al. 1997; Reisenzein 2000). *Unexpected* denotes vague and not well-defined expectations about the products/services/attributes whereas *misexpected* denotes precise expectations about the products/services/attributes that do not occur. A *schema* is a private, normally informal, inarticulate, unreflective theory about the nature of objects, events or situations (Rumelhart 1984). It contains variables and interconnections among variables. Variables represent the characteristics of a given concept (e.g. wheels, lights, etc. for a car) and are specified by constraints that define the normal range of possible values of the variable (e.g. wheels are necessarily round whereas lights may be round or oval); interconnections specify how

variables relate to one another (e.g. lights are on the front and the back of a car, on each side, near the wheels) (Schützwohl 1998). In order to have a proper representation of the reality, individuals continuously check whether their schema matches the inputs coming from the surrounding environment. This check is, however, rather unconscious (Scherer 1984). As soon as inputs diverge from the schema, surprise is elicited. Schema discrepancy is seen as the crucial cognitive surprise-eliciting condition (e.g. Gendolla 1997; Stiensmeier-Pelster et al. 1995). Interestingly, Schützwohl (1998) showed that the stronger the variable constraints are, the stronger surprise is when a divergence occurs (see Schützwohl 1998, for more details). The strength of the variable constraints is determined by the frequency of the activation of the schema (e.g. how often the person sees a car) and by the variability of the variables in the past (e.g. how often the shape of the wheels varied in the past). If the variability is low, the constraints become tighter and more rigid with an increasing number of schema activations and vice versa (Schützwohl 1998). Variable constraints are not the only elements that can influence the intensity of surprise. Gendolla (1997) has shown, for example, that personal relevance (i.e. whether the "divergent" event is important or not for the person) also influences the intensity of surprise: the higher the personal relevance, the stronger surprise tends to be.

It should be noted that another theoretical causal framework for surprise – the attributional model (Weiner 1985) - has been suggested in the literature. According to this model, unexpected events do not elicit surprise but elicit causal search and attributions. If attributions are attributions to chance, then surprise is elicited but not otherwise. However, this model has been strongly criticised by Stiensmeier-Pelster et al. (1995) who pointed out several theoretical problems related to it (For example, in the attributional model, surprise remains an epiphenomenon. This is at odds with the properties of surprise and with Weiner's view

(1986) itself, which assumes that emotions are important motivators of action). Stiensmeier-Pelster et al. (1995) and Gendolla (1997) also provided some empirical evidence that did not support the attributional model. Therefore, like recent work on surprise (e.g. Reisenzein 2000), this article adopts the 'schema discrepancy → surprise' causal framework.

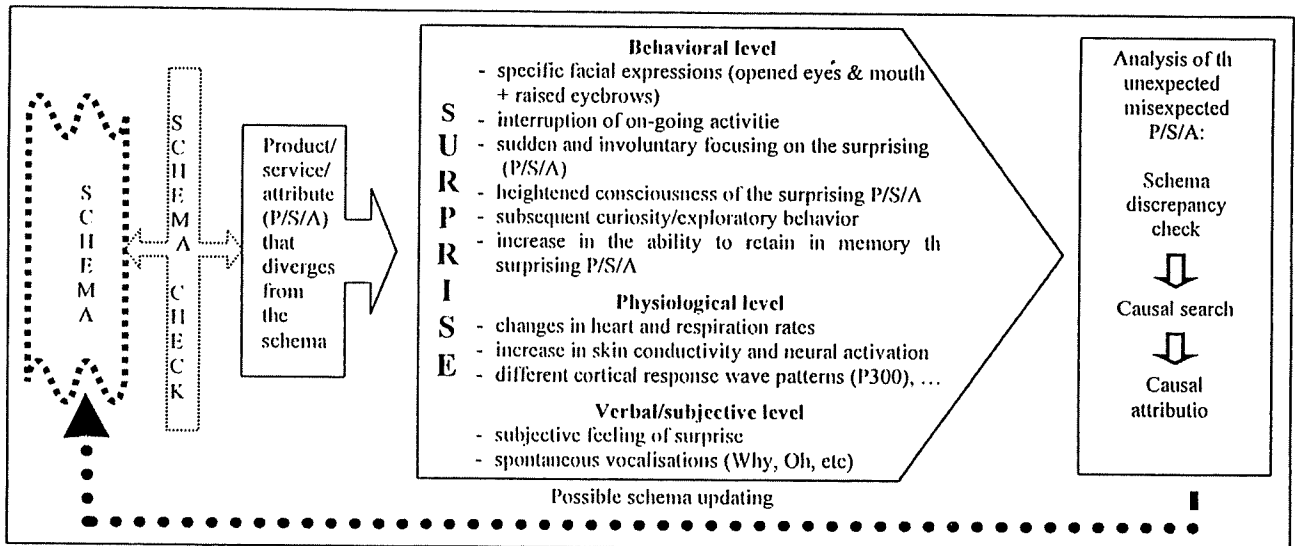
It should be emphasized that surprise should not be identified with the awareness of a schema discrepancy, which is a "cold" cognition (Stiensmeier-Pelster et al. 1995, p. 9). Surprise is a syndrome of reactions, i.e. a specific pattern of reactions at the *subjective* (e.g. subjective feeling), *physiological* (e.g. changes in the respiration and heart rates) and *behavioral* levels (e.g. raised eyebrows and exclamations of surprise) (Meyer et al. 1997; Reisenzein 2000; Reisenzein et al. 1996). At the behavioral level, one major characteristic of surprise – besides its specific facial expression – is the interruption of ongoing activities (e.g. Meyer et al. 1991). Tomkins (1962), for example, describes surprise as a "general interrupter to ongoing activities" and contends that "this mechanism is similar in design and function to that of a radio or television network which enables special announcements to interrupt any ongoing program" (Tomkins 1962, p.498). A similar argument is provided by Izard (1991) who considers that the function of surprise is to clear our nervous system of ongoing activities that would interfere with adjustment to a schema discrepancy in our environment. A spontaneous focusing of attention on the schema discrepant event follows the interruption of activities and results in a heightened consciousness of the surprising stimulus at the expense of other stimuli (the potential of interference of those stimuli is therefore limited) (Charlesworth 1969; Niepel, et al. 1994). The interruption of ongoing activities, the focusing of attention and the heightened consciousness of the surprising stimulus are supposed to help the individual to process the surprising event (Schützwohl 1998). Linked to the focusing of attention, surprise also results in a better retention

in memory of the surprising stimulus (e.g. Meyer et al. 1997). Eventually, surprise also gives rise to exploration / curiosity behavior (which may also be coupled - at the subjective level - with "why?" questions) (Charlesworth 1969). Figure 1 gives an overview of the components of the emotion of surprise at each level.

Even though the traditional and widespread "syndrome of reactions" concept advocates a strong association between the emotion components, several studies have shown that the different components of emotions are only weakly associated or even not significantly associated; such is also the case for surprise. This dissociation would advocate for a "looser" version of the syndrome of reactions concept (Reisenzein 2000).

Scherer (1984) assumes that each emotional state is the result of one or more sequential stimulus evaluation checks (SEC). The five sequential SEC he describes are: 1) schema discrepancy; 2) intrinsic pleasantness or unpleasantness; 3) goal relevance; 4) coping potential; 5) norm compatibility. The label "surprise" results from the first SEC, i.e. the schema-discrepancy check. However, as a result of the evaluation of the pleasantness / unpleasantness of the experience - which follows straight after the evaluation of the schema discrepancy -, the emotion of surprise is often followed by another emotion that colors it either positively (e.g. surprise + joy) or negatively (e.g. surprise + anger) (Ekman and Friesen 1975). This explains why people talk about *good or pleasant surprise* and *bad or unpleasant surprise*. If no positive or negative affective reaction follows surprise (i.e. none of the SEC numbered from 2 to 5 elicited a valenced affective reaction), surprise remains uncolored. 'Uncolored' surprise seems to be infrequent in the case of consumption/purchase experiences, though (e.g. in the diary study by Vanhamme (2001), only 5% of the surprising experiences collected remained uncolored). In the rest of this article, we will use the terms 'positive surprise' and 'negative surprise' to qualify the emotion of surprise followed by, respectively, positive and negative affective reactions.

Figure 1  
The Emotion of Surprise



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Finally, surprise results in processes such as a causal search and causal attribution (e.g. Stiensmeier-Pelster et al. 1995) that aim at eliminating the schema discrepancy and lead, if necessary, to the updating of the relevant schema (e.g. Reisenzein et al. 1996). If the schema is updated, the same stimulus is not likely to elicit surprise once again since it becomes part of the schema and thus it is expected. Note that surprise is by itself enough to *initiate* the causal search, but the length and intensity of the search will depend on the perceived benefits and costs linked to this cognitive effort. Perceived costs and benefits are influenced by factors such as the importance and valence of the event, the access to information, the amount of effort that is needed, and the amount of time that is available (Stiensmeier-Pelster et al. 1995; Pyszczynski and Greenberg 1987).

## CONSUMER SATISFACTION

Satisfaction has become one of the most

studied concepts in post-purchase/consumption processes because of its managerial relevance: it has, for example, been shown to influence word-of-mouth, customer attitude, and customer retention (e.g. Oliver 1980; Swan and Oliver 1989). The concept of satisfaction has been defined in several ways, sometimes quite differently. For example, some authors consider satisfaction as an emotion, i.e. something purely affective (e.g. Westbrook 1980; Woodruff et al. 1983), whereas other authors have reduced it to a purely cognitive comparison (e.g. Bloemer and Kasper 1995; Churchill and Surprenant 1982). At this stage in time, however, it is acknowledged that customer satisfaction is neither purely affective nor purely cognitive (e.g. Oliver 1997; Price et al. 1995).

Different types of satisfaction have also been defined: (1) *consumer's transaction specific satisfaction* - i.e. evaluation of a specific purchase or consumption occasion (e.g. satisfaction with the dinner I had at the Pizza Hut restaurant today), (2) *consumer's brand satisfaction or consumer's*

*overall satisfaction* - i.e. overall evaluation based on many experiences of the same kind (e.g. satisfaction with the Pizza Hut restaurant), (3) *microeconomic satisfaction* - i.e. satisfaction of all consumers at the firm-level - and (4) *macroeconomic satisfaction* - i.e. satisfaction at the level of a society or a culture (Anderson and Fornell 1994; Oliver 1997). However, most studies analyzing the processes underlying satisfaction formation (i.e. antecedents of satisfaction) have focused on the *consumer's transaction-specific satisfaction* (e.g. Churchill and Surprenant 1982; Oliver 1980; Oliver and Desarbo 1988). Furthermore, some authors (e.g. Evrard 1993; Aurier and Evrard 1998) believe that the satisfaction concept only refers to this first type of satisfaction. Like the studies mentioned above, the focus of this paper is on *transaction-specific satisfaction*. Following several authors (e.g. Aurier and Evrard 1998, Evrard 1993, Plichon 1998, Shieff et al 2000), we define this type of satisfaction as a *psychological - and relative - state resulting from a buying and/or consumption experience*. This definition takes into account (a) the *dual character of satisfaction* - i.e. satisfaction is both cognitive and affective - and (b) its *relativity* - i.e. satisfaction is the result of a comparison between a subjective experience and an initial reference base. This principle of comparison has notably been well established in the so-called *expectation-disconfirmation paradigm* (Oliver 1980, see below). Despite its dual character, satisfaction should not be confused with an *attitude*. Attitude is relatively stable over time and general (e.g. anyone can have an attitude toward the last Spielberg movie without having seen it) whereas satisfaction is transitory and specific (i.e. satisfaction is related and posterior to a specific consumption/buying experience: one has to see the last Spielberg movie to evaluate one's satisfaction with it). Nonetheless, those two concepts are not independent: attitude is both an antecedent and a consequence of satisfaction (Evrard 1993; Oliver 1980). Since, as mentioned by Oliver (1981, p. 51), "satisfaction soon decays into (but nevertheless greatly affects) one's

overall attitude toward purchasing products", a measurement of satisfaction immediately after the consumption/purchase experience would provide the best construct validity (LaBarbera and Mazursky 1983).

Several theories and models about the formation of customer satisfaction have been put forward. Most of them, however, are adaptations (i.e. variants or improvements) of the original *expectation-disconfirmation paradigm* (Churchill and Surprenant 1982; Evrard 1993). According to this paradigm, customer satisfaction is caused by the disconfirmation between prior expectations, i.e. the standard of comparison, and the perceived performance of a product or a service [P/S here after]. As Westbrook (1987, p. 260) clearly explains it: "expectancy disconfirmation can range from positive (obtained outcomes exceeds those expected) to neutral (obtained outcomes exactly meets those expected) to negative (obtained outcomes fall short of those expected)." Disconfirmation was originally considered as a mediator between expectations and performance (Evrard 1993). Different measures of 'objective' and 'subjective' disconfirmation have been developed. The former one is usually defined as a difference of scores between performances and expectations. The latter one is a subjective (not numeric) evaluation of the difference between expectations and performances (measured by asking, on a scale, to what extent performance was better than / worse than expected). The subjective disconfirmation is used in most studies and has been shown to better explain satisfaction judgements (Oliver 1997).

Refinements have led to the inclusion of a direct link between performance and satisfaction and between expectations and satisfaction (e.g. Bolton and Drew 1991; Churchill and Surprenant 1982). Disconfirmation remained, however, the variable that accounted for the largest part of explained variance in satisfaction (Churchill and Surprenant 1982). Furthermore, several models used another standard of comparison, as for example experienced-based norms (e.g. Woodruff et al. 1983) or schemata (Stayman et al. 1992).

Later models of satisfaction formation also included *attributions*, *equity*, and *quality* as additional causes of satisfaction (e.g. Oliver and Desarbo 1988; Oliver 1994). Attributions are what people perceive as the cause of their own behavior, the behavior of others and the events occurring (Bitner 1990); equity is the evaluation of the fairness of the exchange based on the comparison between the seller and the buyer costs/benefits ratio (Oliver and Desarbo 1988) and quality is "*a judgement of performance excellence; thus a judgement against a standard of excellence*" (Oliver 1997, p. 28). However, these additional variables only helped clarifying the cognitive mechanisms at work in the satisfaction formation.

Westbrook (1980) was the first to introduce affective variables as antecedents in models of satisfaction formation. In a later study (Westbrook 1987), this author showed that pleasant and unpleasant emotions influenced customer satisfaction and that this relationship was not mediated by disconfirmation and expectations beliefs. After his work, several others started to investigate the affective mechanisms involved in satisfaction judgements (e.g. Mano and Oliver 1993; Oliver 1993; Oliver et al. 1997). Affective variables, and more specifically emotions, were shown to add considerably to the explanatory power of the satisfaction model (e.g. Oliver 1993; Westbrook 1987). However, these studies have not analyzed the specific role of the emotion of surprise on satisfaction, although it is often suggested that surprise is an emotion that can lead to extreme levels of satisfaction (e.g. Oliver et al. 1997; Rust et al. 1996). Disconfirmation (i.e. a cognition that summarizes the recognition that the performance of a P/S is better or worse than expected) is unlikely to encompass all aspects of the emotion of surprise that can influence satisfaction and is thus worth studying on its own. There can be instances in which consumers will experience surprise AND disconfirmation but also cases in which consumers will experience surprise without disconfirmation or disconfirmation without surprise (see the results of the diary study

by Vanhamme (2001) for empirical support of this proposition). Products or services that are completely unexpected (e.g. an exotic type of food that the individual has never seen, tasted or heard about) are not likely to elicit disconfirmation. In those instances, "because product performance expectations may be only vaguely defined, there may be little cause for disconfirmation" (Oliver 1989, p. 10). However, such instances will trigger off surprise because this type of food falls outside the possible range of variation of any variables of the individual's schema. In contrast, performances that are within a certain range of variation might create disconfirmation but not surprise if the constraints of the schema are flexible. For example, an investor who has bought stocks several times and has experienced - for his past purchases - fluctuations of 2-3% around a forecasted growth rate of 12% will not be surprised when the stock he just bought increases by 15% instead of 12%. This is because the constraints of his schema were flexible, since the real growth rates happened sometimes to be 2-3% higher or lower than forecasted during the previous activations of his schema. However, the investor would still experience positive disconfirmation because the growth rate was more than expected.

#### **PROCESSES THROUGH WHICH SURPRISE LEADS TO ENHANCED SATISFACTION**

We now turn to the suggestion that consumer satisfaction may be enhanced by surprise (e.g. Oliver et al. 1997; Rust et al. 1996). As we already said in the introduction, this suggestion is based on the empirical work of Plutchik (1980) and Westbrook and Oliver (1991; Oliver and Westbrook 1993), where it is found that delight (i.e. highest level of favorable satisfaction) results from a combination of surprise and joy. Although this work does not provide definitive empirical support, it does indicate that surprise and satisfaction are somehow linked. But given that surprise is a neutral emotion, having no positive

or negative valence on its own, how can it exert a positive effect on the consumer's satisfaction level?

Before investigating the possible processes linking surprise to satisfaction, it is worth mentioning how memory is involved in any kind of judgement process (such as satisfaction). Hastie and Pennington (1989) have distinguished three types of judgement processes:

a) *On-line* judgements: during the consumption/buying experience, consumers encode inputs from the environment in their working memory. The relevant inputs are then processed in order to form a satisfaction judgement. After a while, the inputs and the satisfaction judgement may be transferred to long-term memory. When the consumers are then asked to report on their level of satisfaction, they retrieve the judgement from memory.

b) *Memory-based* judgements: inputs from the environment are encoded in the working memory and, after a while, transferred to long-term memory without any processing. When a satisfaction judgement is requested, the relevant material is retrieved from the memory and processed.

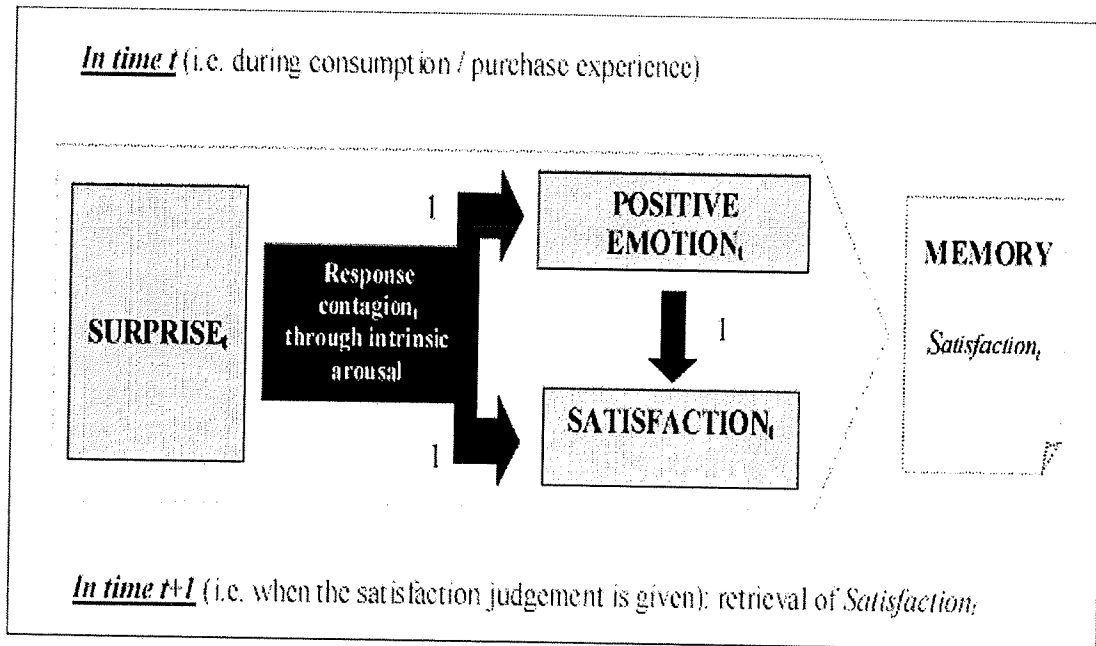
c) *Inference-based* judgements: this third type of process is a mixture of on-line and memory-based processes. Inferences are made on-line on the basis of inputs from the environment (e.g. evaluation of the hotel location, evaluation of the decoration), and these inferences are encoded in the memory. When a satisfaction judgement is requested, these inferences are retrieved from the memory and processed.

The role of surprise in the judgement process may be very different according to the type of process. We start with the first possibility, that surprise has an impact on an on-line judgement of satisfaction (see figure 2). The high arousal that is

inherent in surprise is known to be able to amplify subsequent affective reactions (Charlesworth 1969; Desai 1939). Thus, someone who has just been surprised by an unexpected positive event will experience more joy than someone in a similar situation who has not previously been surprised. This characteristic of surprise can be explained by the theory of excitation transfer in which residues of activation from prior stimulation combine with excitation in subsequent stimulation; the combined activity is then expected to intensify the emotional experience during the subsequent stimulation (e.g. Zillmann 1983). Interestingly, Oliver (1997) suggested that different levels of satisfaction notably differed in their level of arousal: the higher the satisfaction level (e.g. delighted), the higher the intrinsic level of arousal contained in the satisfaction response. Within this framework, the relationship between surprise and consumer satisfaction would lie in the high arousal level that is part of the surprise reaction. This high arousal level would amplify subsequent emotions about the P/S, such as joy, and these, in turn, may enhance the satisfaction level of consumers. Theoretically, surprise might also directly influence the satisfaction response since satisfaction is partly affective; see above. Previous research also shows that a combination of surprise and joy leads to very high levels of satisfaction (e.g. Oliver and Westbrook 1993; Westbrook and Oliver 1991).

In this case, we may think of the relationship between surprise and satisfaction as 'response contagion' (after Nutin and Beckers 1975), since it can be portrayed as an effect of the intrinsic arousal of surprise on a judgement of satisfaction that is independent of memory retrieval of the surprising stimulus or inferences that consumers may make on the basis of the surprise. Instead, the arousal that is part of surprise can be seen as contaminating the experience of subsequent emotions, such as joy, which in turn would impact on the judgement of satisfaction. In a similar way, the intrinsic arousal of surprise would also directly contaminate the affective component of satisfaction. If satisfaction is an on-line

Figure 2  
On-line Judgement of Satisfaction



Legend.

(1) *Response contagion<sub>t</sub>*: Through its arousal, surprise, contaminates the affective component of satisfaction, and positive emotion<sub>t</sub>. Positive emotion<sub>t</sub> is incorporated in the judgement of satisfaction.

judgement, response contagion would be the most probable explanation for surprise effects on satisfaction. Note that response contagion works on the basis of the higher arousal level that surprise creates. Therefore, it does not matter that surprise itself is neutral (i.e. neither positively nor negatively valenced), what matters is the valence of subsequent affective reactions that are amplified by surprise. For example, if a chocolate egg would break surprisingly quickly (which is neither negatively nor positively valenced), but one finds a toy in the egg that is (unsurprisingly) pleasing, the surprise of breaking the egg will enhance the pleasure felt by finding the toy.

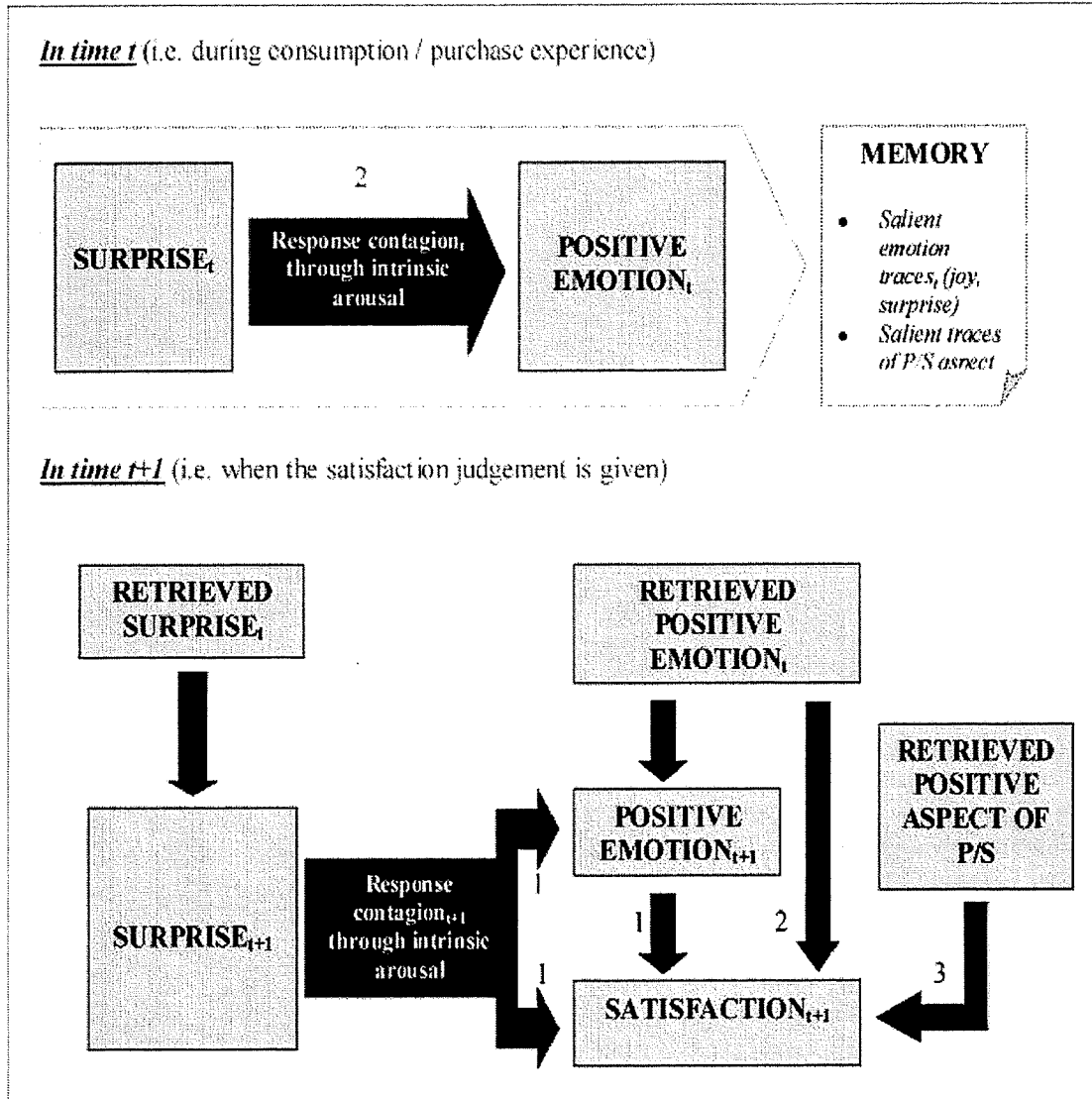
A second possibility is that satisfaction is a memory-based judgement (see figure 3). In that case, a satisfaction judgement is constructed using knowledge about P/S performance that is retrieved from memory. Response contagion may

also be operative in memory-based judgements. Again, the intrinsic arousal of surprise may make the experience of a subsequent emotion more intense, and when a satisfaction judgement is constructed, a more intense positive emotion will be retrieved from memory. Moreover, when the memory of an emotional episode is brought to mind, it may to some degree have the capacity to elicit the same emotions (Cohen and Areni 1991). These, in turn, may have a positive influence on satisfaction.

However, response contagion is not the only explanation for the relationship between surprise and satisfaction for memory-based judgements. An alternative explanation may be based on the greater accessibility in memory of surprising P/S aspects. Emotions experienced during purchase or consumption produce strong memory traces. The more intense the emotional response is, the more



**Figure 3**  
**Memory-based Judgement of Satisfaction**



**Legend.**

- (1) *Response contagion<sub>t+1</sub>*: Surprise<sub>t</sub> and positive emotion<sub>t</sub> are re-elicited, surprise<sub>t+1</sub> contaminates positive emotions<sub>t+1</sub> and the affective component of satisfaction<sub>t+1</sub>. Positive emotion<sub>t+1</sub> is incorporated in the judgement of satisfaction<sub>t+1</sub>
- (2) *Response contagion<sub>t</sub>*: Surprise<sub>t</sub> contaminates positive emotion<sub>t</sub>, and the contaminated positive emotion<sub>t</sub> is stored in memory. When a satisfaction judgement is given in t+1, positive emotion<sub>t</sub> is highly accessible in memory due to the amplification effect of surprise and is thus more easily retrieved and incorporated in the final satisfaction judgement.
- (3) *Knowledge accessibility*: The surprising P/S aspect has left stronger memory traces and, compared to non-surprising aspects, it is more likely to be evaluated in time t+1. It thus has a disproportionate share in the final satisfaction judgement.

salient the trace is (Izard 1977; Tomkins 1980; Westbrook 1987). Among the emotions, surprise

stands out in particular as an emotion whose purpose is to interrupt any ongoing activity and

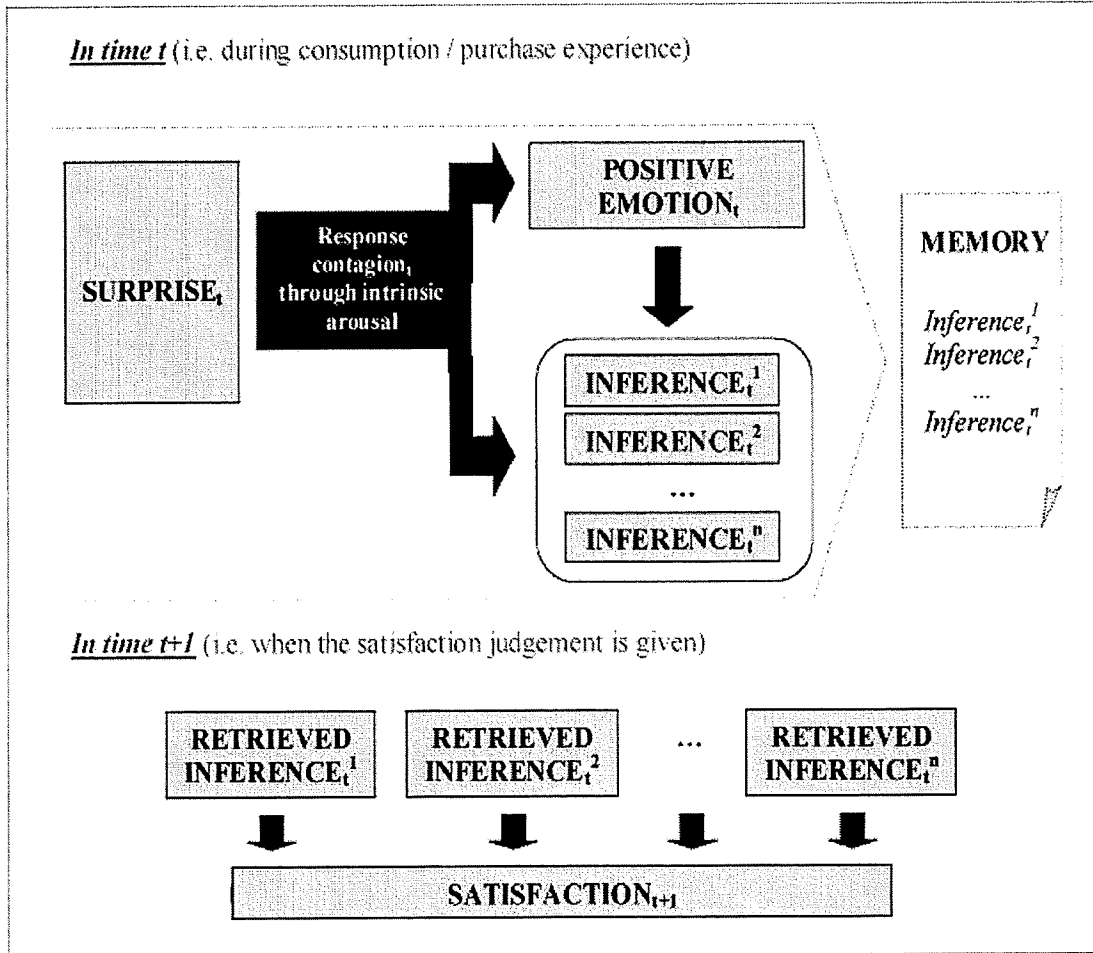
allow people to take in as much information as possible about a target in the environment (Charlesworth 1969; Darwin 1872). The result of this is that surprising events leave stronger traces in memory (e.g. Meyer et al. 1997) and are thus more easily retrieved. Research on social perception and judgement shows that more accessible knowledge about a stimulus will disproportionately influence the judgement about the stimulus (Bruner 1957; Higgins 1996; Wyer and Srull 1989). Applied to consumption/buying experiences with P/S, this implies that positively valenced P/S aspects (i.e. a P/S aspect that elicits positive affective reactions either during encounter or during retrieval of the event) will have a larger impact on memory-based satisfaction judgements if they are surprising. If the P/S aspect is surprising, it is much more likely to be processed at a later stage, and the positive valence that the P/S aspect acquires will have a disproportionate share in the final satisfaction judgement. Thus, surprise will provide greater accessibility of the P/S aspect, and this will lead to a higher satisfaction level for positively valenced P/S aspects. We will call this possible relationship between surprise and satisfaction a 'knowledge accessibility' effect, after Bruner (1957). Again, for memory based satisfaction judgements, it should not matter that the initial surprise is neutral, what matters is the valence of P/S aspect.

A third and last possibility is that satisfaction is an inference-based judgement (see figure 4). In this case, aspects of the P/S are evaluated on-line during the consumption experience and these are encoded in memory. It is likely that surprise will influence inference-based satisfaction judgement through response contagion and knowledge accessibility. Namely, the increased arousal that stems from the surprising stimulus may contaminate the positive affective reactions elicited during the encounter with the P/S and, as a result, influence the evaluations of the P/S aspects in a positive way. Thus, more positive evaluations would be retrieved from memory. Surprise can also make a positive evaluation of a

product aspect more accessible, and this, in turn, may increase the probability that that aspect will be retrieved from memory.

The above mentioned theoretical arguments and empirical findings strongly suggest that positive surprise may play an important role in consumer satisfaction. If this is so, it would also be interesting to investigate the effect of negative surprise on satisfaction. It seems likely that both mechanisms described above (contagion and knowledge accessibility) are likely to operate on negatively surprising experiences in a similar way (i.e. surprise will amplify subsequent negative emotions and increase the accessibility of negatively valenced aspects of the experience) and lead to lower levels of satisfaction (compared to non-surprising experiences of the same kind). The shape of the relationship between surprise and satisfaction for negatively and positively surprising experiences would, however, *not necessarily* be symmetrical (i.e. the same level of negative and positive surprise would not necessarily lead to exactly the same level of impact on satisfaction). It has been suggested in the literature that negatively valenced information receives more weight than positively valenced information (Fiske 1980). The reason that is provided for this is the relative infrequency of negative events (compared to positive events), so that negative events stand out. It could therefore be argued that the impact of negative surprise is asymmetrical to the impact of positive surprise: negative surprise would have a stronger impact on satisfaction than positive surprise. However, a counterargument is that both positively *surprising* and negatively *surprising* information would stand out due to surprise. This argument would favor a symmetrical (but opposite) effect on satisfaction for negative and positive surprise. Further empirical investigation is thus needed to conclude whether or not the relationship between surprise and satisfaction is symmetrical for positive and negative valenced P/S aspects. So far, the empirical work by Plutchick (1980) is the only study known to the authors that investigates the combination of surprise with negative emotions.

**Figure 4**  
**Inference-based Judgement of Satisfaction**



Legend.

- (1) *Response contagion*: Surprise<sub>t</sub> contaminates positive emotion<sub>t</sub> and the evaluative component of inference<sub>t</sub><sup>1...n</sup>. Positive emotion<sub>t</sub> is incorporated in the evaluative component of inference<sub>t</sub><sup>1...n</sup>.
- (2) *Knowledge accessibility*: Inferences based on the surprising P/S aspect are more accessible and have a disproportionate share in the final satisfaction judgement.

For example, he has shown that surprise and anger lead to ‘outrage’ and that surprise and sadness result in ‘disappointment’. Interestingly, Schneider and Bowen (1999) have conceptualized *outrage* as the mirror image of customer delight and believe that outrage leads to defection and ‘terrorism’ (i.e. the outraged customer tells his story to other customers and perhaps exaggerates

it with each retelling). This last conceptualization would suggest a symmetrical relation between positive and negative surprise.

In the previous paragraphs of this section, the processes through which surprise influences satisfaction have been described. However, nothing has yet been said about the relative frequency of the different processes – on-line,

memory-based and inference-based – in consumption/buying experiences. According to Hastie and Pennington (1989), people often process information on-line but some will postpone their *final* judgement until later. In other words, on-line and inference-based judgements are common, and pure memory-based judgements seem rather seldom. In addition, surprise itself may also enhance the likelihood of on-line processing since surprise leads to a focusing of attention and to more cognitive processing (causal search, etc., see above). As a result, a surprised consumer is likely to make more inferences 'on the spot' (about different aspects of the P/S, for example) and he or she may therefore also be more likely to process his/her final evaluation of satisfaction on-line. Factors such as involvement may also lead to more frequent on-line processing of satisfaction. Suppose a consumer has just bought the car of his/her dreams (i.e. highly involved) and it breaks down on his/her way home. In this case the consumer is likely to evaluate immediately – i.e. on-line – his/her level of dissatisfaction with the car. At the other extreme, the consumer who strikes a match that goes out immediately (due to poor quality) will probably not bother evaluating his/her level of dissatisfaction or make any inferences on the spot; s/he will just strike the next match.

Factors such as mood, time pressure, task difficulty, motivation, etc., are known to influence both the type of processing, and the instant the judgement is constructed, which makes it difficult to give general rules about the type of judgement that will be made. Nonetheless, the type of processing is not beyond management control. The procedures used for experimental manipulation in social judgement research to elicit a particular type of processing may readily be translated to the marketing setting (see Hastie and Park 1986). Suppose that a shop surprises its customers by helping them carry their groceries to the car park. It may then want to stimulate its customers to form on-line satisfaction judgements about the store by placing a poster with "satisfied or reimbursed" near the store exit. The positive

surprise (carrying groceries) is then most likely to have a disproportionate effect on the consumer's satisfaction with the whole store.

### **MODERATING FACTORS THAT INFLUENCE THE RELATIONSHIP BETWEEN SURPRISE AND SATISFACTION**

The possible mechanisms through which surprise influences satisfaction have been delineated in the previous section. We now turn to the variables that may affect the direction and/or strength (or even existence) of the relationship. These variables can be categorized as P/S related factors, consumer related factors and context related factors.

#### **Product / Service Related Factors**

Studies carried out on satisfaction have shown that the strength of the relationship between some antecedents of satisfaction (e.g. disconfirmation, performances) and satisfaction differed according to the kind of P/S that was used in the study (Evrard 1993). Non significant relationships were found for some P/S whereas strong significant relationships appeared for other P/S. For example, Churchill and Surprenant (1982) found a significant relationship between disconfirmation and satisfaction for plants (i.e. non durable good) but a non significant relationship between these two variables for video-disc players (i.e. durable good). Thus, the type of P/S could be a potential moderator, and research on the surprise-satisfaction relationship should be based on more than one single product or service to avert a mono-operation bias. It is, however, worth noting that the real moderator might rather be related to the respondent's involvement with a specific P/S category, i.e. a consumer related factor (see hereunder).

#### **Consumer Related Factors**

A number of consumer related factors can

moderate the relationship between surprise and satisfaction. Companies that decide to go for a "surprise strategy", should definitely take the following variables into account, since the effectiveness of their strategy may depend heavily on the type of consumers who are in the targeted market segments. Involvement is one consumer related factor that has been presented in the satisfaction literature as a moderator of the relationship between satisfaction and its antecedents (Babin et al. 1994; Evrard 1993; Oliver 1997). High involvement has been shown to elicit an increased arousal (Bloemer and de Ruyter 1999; Celsi and Olson 1998). As a result, the arousal that stems from high involvement would combine with the intrinsic arousal of surprise and lead to stronger effects on satisfaction than in a context of low involvement.

Another possible moderator variable is mood, because this variable has also been shown to moderate the relationship between satisfaction and its antecedents (Oliver 1997) – especially in low involvement contexts (Babin et al. 1994). Positive mood would tend to have a positive halo effect on satisfaction (Cohen and Areni 1991), which would combine with the positive impact of surprise on satisfaction (for a positively surprising experience) and reinforce the effect of surprise. On the other hand, negative mood would tend to have a negative halo effect on satisfaction which might reduce or counteract the positive effect of surprise on satisfaction (for a positively surprising experience). It should, however, be borne in mind that surprise itself is likely to increase the situational involvement and, as a result, reduce (or annihilate) the potential moderating impact of mood on the surprise - satisfaction relationship.

Personality and expertise are two other variables that have been suggested as potential moderators of the relationship between satisfaction and its antecedents and might also moderate the surprise-satisfaction link. For example, extravert consumers – i.e. consumers who are generally under-aroused and seek excitement from social interaction or external stimulation in order to reach their optimal level of

stimulation (Oatley and Jenkins 1996) – might exhibit a stronger surprise-satisfaction link than introvert consumers who already have enough inner arousal and try to ensure that nothing increases their level of arousal. With respect to expertise, it could be argued that the more a consumer is an expert in his/her field, the less likely s/he will be guided by his/her emotions. Therefore, the surprise-satisfaction relationship would be less strong than for non expert consumers. Note that expert consumers are also more likely to have a more rigid schema (unless the P/S is not standardized at all, i.e. its attributes are highly variable) and, as a consequence, if they are surprised, their level of surprise would be higher than for non expert consumers (see above). Thus, experts may be characterized by rare and strong surprises, while non-experts might experience more frequent, but weaker surprises.

Other potential moderators suggested in the satisfaction literature are sex and age (Varki and Rust 1997). These variables could, therefore, also moderate the surprise-satisfaction relationship. As far as sex is concerned, some studies report sex differences in emotional experiences. For example, women tend to endorse more extreme (positive and negative) affective responses than men (Derbaix and Pham 1991). Women might thus display a stronger surprise-satisfaction relationship than men. With respect to age, some studies have shown that older people become 'experts' on emotions, i.e. they show greater emotional complexity, enhanced self-regulation and understanding of emotions than younger people (Rimé et al. 1998). Their sensitivity to emotional influences might therefore be reduced (or more controlled) and, as a result, a less strong relationship between surprise and satisfaction would appear than for younger people.

### Context Related Factors

It can be argued that the effect of surprise on satisfaction will be moderated by the comparison relevance of the judgement situation, which can influence the type of mindset that consumers are

in while evaluating their satisfaction.

Recent empirical work by Stapel, Koomen and Van der Pligt (1997), and Stapel and Koomen (2000) shows that *accessible knowledge* is more likely to produce assimilation effects when the context of judgement activates an interpretation goal (e.g. evaluation of the meaning or usefulness of the surprising P/S aspect) and contrast effects when the context of judgement activates a comparison goal (e.g. comparison with another P/S bought previously, comparison with the other P/S that were evaluated in the shop, comparison with the P/S the neighbors purchased). Putting people in a context that activates an interpretation goal was found to lead to judgements that are more extremely positive or negative, while activation of a comparison goal was found to lead to less extreme judgements.

Presence or absence of P/S alternatives may well provide a context that favors or inhibits comparison making. However, presence or absence of alternatives is not the determining factor, since people are found to make comparisons with internalized reference standards when alternatives are absent (Hsee and Leclerc 1998; Kahneman and Miller 1986). What seems to be the determining factor is the type of mindset, comparison or interpretation, that people are in. These mindsets can be triggered even by seemingly unrelated contextual factors that activate particular goals prior to the judgement of satisfaction. For example, in Stapel and Koomen (2000), reading the word *understand* [comparison] is enough to trigger an interpretation [comparison] mindset.

For inference-based and memory-based judgements, the above means that a positively [negatively] valenced consumption/purchase episode should lead to a higher [lower] level of satisfaction if *the context of judgement* facilitates interpretation goals than if it facilitates comparison goals. Note that the context of judgement may or may not be *the context of the consumption/purchase*. It depends on how long after the purchase/consumption the judgement of satisfaction is constructed. The comparison

relevance of the satisfaction judgement context may thus moderate the effect of surprise on satisfaction through the process of knowledge accessibility. Contexts low on comparison relevance may reduce the effect of surprise on satisfaction, while contexts high in comparison relevance may enhance it.

Comparison goals may be more active in pre-purchase/consumption situations, during which the consumer gathers information about the P/S or visits several locations to buy the P/S (i.e. the P/S is actively compared with several choice alternatives), whereas interpretation goals may be more active in (post-)purchase/consumption situations, during which the consumer is getting to know the P/S and trying out its various uses. While purchasing or consuming, the consumer is usually 'face-to-face' with the P/S and is guided by the desire to satisfy his/her needs. Moreover, satisfaction judgements are given after purchase or consumption (e.g. Aurier and Evrard 1998; Evrard 1993; LaBarbera and Mazursky 1983; Oliver 1997). Therefore, the sooner (after consumption/ purchase) the satisfaction judgement is constructed, the more likely the activities prior to the evaluation of satisfaction will be driven by interpretation goals.

This distinction between pre-purchase and (post-)purchase situations should, however, not be taken very strictly. This is because contrastive comparison effects may also be triggered by a number of consumer and product related factors. First, knowledge of a whole range of product alternatives may be chronically accessible to experts who are enduringly involved in the product category (Higgins, King and Mavin 1982, Thorndyke and Hayes-Roth 1979), and this should favor contrast effects. Second, even high occasional involvement may create contrast effects, because subjects may only then want to exert the greater cognitive effort that comparison making takes (Babin et al. 1994, Gilbert et al. 1988). Finally, contrast effects can be stimulated by the level of abstraction of the surprising P/S aspect itself, since concrete information is found to facilitates comparisons more than abstract

information (Stapel et al. 1997).

It is worth noting that the concept of comparison relevance of a judgement situation is commonly referred to as a context factor (e.g. Stapel, Koomen and Van der Pligt 1997, Stapel and Koomen 2000). However, since it influences the type of mindset that consumers are in while evaluating their satisfaction, it could be argued that the real moderator is the type of mindset, i.e. a consumer-related factor, rather than the comparison relevance of the situation.

Other context related factors are likely to moderate the surprise - satisfaction relationship. However, most (if not all) of them will have an impact on the relationship between surprise and satisfaction through the consumer related factors discussed above. For example, a contextual factor like advertising or word-of-mouth can trigger involvement and/or enhance consumer expertise levels, and these can have moderating effects on the relationship between surprise and satisfaction.

## CONCLUSION AND DISCUSSION

The goal of this paper was to discuss how surprise can enhance satisfaction. This has led to the identification of a number of different ways in which the suggested relationship may be operative. If satisfaction is an on-line judgement, surprise is most likely to affect satisfaction through response contagion. If, on the other hand, satisfaction is a memory-based or inference-based judgement, surprise may also enhance satisfaction on the basis of knowledge accessibility. Even though it has been suggested in the literature that surprise enhances satisfaction, no empirical results have convincingly validated this proposition. Thus, further research should first show that a relationship exists between surprise and satisfaction, be it as on-line judgement or a memory-based or inference-based judgement. If additional research provides clear evidence for a relation, we can then turn to the specific psychological processes that underlie it. This would also have managerial relevance, since control of the type of processing is possible, and

an enlarged understanding of what is going on will help companies to put surprise to various uses.

Experiments seem an appropriate methodology for the purpose of disentangling the relationship between surprise and satisfaction. This would allow the manipulation of surprise experienced by the respondents in a consumption-buying context and the measurement of its causal impact on their levels of satisfaction (e.g. a product or service with a new feature that is not announced prior to the consumption experience). The type of processing can also be manipulated as explained above (i.e. telling the consumers that an evaluation of their satisfaction is expected would lead to an on-line satisfaction judgement; distracting them while they are consuming the P/S would induce a memory-based processing of satisfaction and telling them to evaluate the attributes of the P/S such as the quality/price ratio, the aesthetics would lead to inference-based satisfaction). This type of manipulation would reveal the (possibly differential) impact of surprise according to the type of satisfaction processing.

Another point is that the relationship between surprise and satisfaction may be moderated by several variables that are related to the P/S, the consumer (involvement, mood, sex, age, expertise and personality) or the context (comparison relevance/type of mindset). The influence of these variables should be controlled for when investigating the surprise-satisfaction relationship. These elements should also be considered by companies, while selecting their strategy, i.e. to go for a 'surprise strategy' or not. A surprise strategy may not be the most appropriate strategy for every kind of company. It depends on the P/S it sells and its customer basis. For example, the gain in satisfaction for a company selling completely standardized products (i.e. products for which it might not be easy to introduce some surprising elements) to medical experts (i.e. people who will probably not be so much influenced by their surprise) will probably not make up for the costs of surprising them. Once

decided to go for a surprise strategy, care should also be taken of the customer related factors (i.e. involvement, sex, age, mood, expertise, personality), and the context of the surprising event (i.e. the mindset that customers are most likely to be in) that may influence the impact of surprise.

Finally, the focus of this paper was on aspects of surprise that are relevant for satisfaction judgements. We have thus limited our discussion of the role of surprise to those instances where consumers have bought or used the P/S. However, surprise may also be employed usefully in marketing outside this particular scope. For example, surprise may aid consumer learning and direct information gathering in pre-purchase situations (In psychology, surprise has been shown to play a crucial role in learning (Charlesworth 1969)). Another aspect that has received little attention here is the social function of surprise. For example, sales people and experts may socialize consumers about what 'should' and 'should not' be expected by showing their (acted) surprise about certain new product features. These examples show that surprise has a relevance for marketing that is beyond the scope of the present paper.

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**Send correspondence regarding this article to:**

Joëlle Vanhamme  
Université Catholique de Louvain  
Institut d'Administration et de Gestion  
Unité MARK  
1 Place des Doyens  
1348 Louvain-la-Neuve BELGIUM